Chapter 1:
Lake Michigan LaMP Overview: Program Structure, Scope, Scale, and Public Involvement

The LaMP is mandated under the Great Lakes Water Quality Agreement Amendments of 1987 and Section 118(c) of the Clean Water Act. EPA is leading a collaborative effort to develop a comprehensive, sustainable ecosystem management approach in partnership with other federal agencies; state, tribal and local governments; and the public. The LaMP is being developed through various committees and workgroups, led by the Management Committee and including the Technical Coordinating Committee, EPA staff working on the Lake Michigan Mass Balance project, and the Lake Michigan Forum. Through a series of meetings, many involving significant public input, EPA has determined that the LaMP will address all ecosystem stressors affecting the lake, critical pollutants, Areas of Concern, and contamination hot spots. As a result, this LaMP for Lake Michigan addresses habitat loss, biodiversity, and exotic species, as well as any other issues affecting the health of the lake ecosystem. The goal of this LaMP is to establish an ecosystem approach for future management of Lake Michigan in order to attain a sustainable ecosystem. The development of the Lake Michigan LaMP is an iterative process, and this document represents a foundation for 2000 to 2002 dialogue leading to LaMP 2002. This LaMP represents many years of work by many people and constitutes essentially Stages 1 to 3 of the LaMP process as required under the Great Lakes Water Quality Agreement. This document, therefore, contains the following: (1) LaMP vision, goals, and ecosystem objectives; (2) indicators of ecosystem health; (3) current status of the ecosystem, beneficial use impairments, and human health; (4) stressor sources and loads; and (5) a strategic action agenda. In addition, the LaMP contains numerous appendices and an extensive compilation of reference materials.

CONTENTS

CONTENTS (Continued)

Figures

Chapter 1:
Lake Michigan LaMP Overview: Program Structure, Scope, Scale, and Public Involvement

1.1 About this Chapter

The purpose of this chapter is to give the reader an understanding of why the Lakewide Management Plan (LaMP) for Lake Michigan was created, who is responsible for its implementation, how it will be used to protect and manage the Lake Michigan ecosystem, and where and at what scope and scale the necessary ecosystem management must occur. The chapter will also give the reader an overview of the LaMP organization, what is presented in each of the subsequent chapters, and the plans to involve the public in LaMP updates and revisions between the years 2000 and 2002.

1.2 About the LaMP – Why

Under the Great Lakes Water Quality Agreement of 1978 (GLWQA), as amended by the Protocols of 1983 and 1987, the United States and Canada (the Parties) agreed "to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem" (IJC 1993). To achieve this purpose, the Parties agreed to develop and implement LaMPs for open lake waters, in consultation with state and provincial governments.

In the case of Lake Michigan, which is the only Great Lake wholly within the borders of the United States, the LaMP development effort has been led by the United States, as called for in Section 118(c) of the Clean Water Act. The U.S. Environmental Protection Agency has taken a collaborative approach to implement this responsibility. A partnership of the federal, state, tribal and local governments in the basin is working with stakeholders in a cooperative, coordinated effort to develop and implement the Lake Michigan LaMP. As specified in Annex 2 of the GLWQA, the LaMP for Lake Michigan is designed to reduce loadings of **Critical Pollutants** in order to restore 14 designated beneficial uses (see Appendix G, Section G.2.4) and prevent increases in pollutant loadings in areas where the Specific Objectives of the Agreement are not exceeded.

Moreover, the Specific Objectives Supplement to Annex I of the GLWQA requires the development of ecosystem objectives for Lake Michigan. Pursuant to this charge, the Lake Michigan LaMP embodies a systematic and comprehensive ecosystem approach to restoring and protecting beneficial uses by seeking a balance between critical pollutant reduction and ecosystem sustainability in open lake waters and the watersheds that comprise the lake basin.

What are Critical Pollutants and Stressors?

The Great Lakes Water Quality Agreement defines *Critical Pollutants* as "substances that persist at levels that, singly or in synergistic or additive combination, are causing, or are likely to cause impairment of beneficial uses despite past application of regulatory controls due to their (1) presence in open lake waters, (2) ability to cause or contribute to a failure to meet Agreement objective through their recognized threat to human health and aquatic life, or (3) ability to bioaccumulate" (Annex 2, Section 1(b)).

Pathogens, fragmentation and destruction of terrestrial and aquatic habitats, exotic nuisance species, uncontrolled runoff, and erosion are among the *stressors* contributing to ecosystem impairments.

1.3 About the LaMP – Who

Section 118(c)(4) of the Clean Water Act is a Congressional mandate making the EPA accountable for the Lake Michigan LaMP. However, the Lake Michigan LaMP process is a collaboration aimed at achieving consensus about goals and priorities for the management of a shared resource. A process to be implemented by a broad range of governments working with diverse nongovernmental interests as equal partners.

The LaMP document serves as the guide for this continuing process of collaborative ecosystem management and partnership activities. Different participating governmental agencies and nongovernmental organizations will be expected to undertake specialized functions based on their missions and authorities, and the LaMP will serve as a focal point for work toward a common set of goals. The general public will track the progress of the LaMP by following published reports on the indicators of the health of the ecosystem components. The public also has the opportunity for direct involvement through the many LaMP education and outreach activities and stewardship projects. Each government, institution, organization, and individual has a potential role to play in the management of a precious shared resource – the Lake Michigan ecosystem.

1.4 About the LaMP- Program Structure

The structure for this basin-wide interaction includes a number of committees and workgroups. Experience has shown that progress is aided by facilitating a structure that provides the networking opportunities for a basin-wide dialogue by promoting discussion through "evolving community of interest."

Federal, state, and tribal participants work together in committees. The structure calls for an overall Management Committee, with the following components reporting to it: a LaMP Technical Coordinating Committee, which is responsible for the document; EPA staff responsible for the Lake Michigan Mass Balance Study; and the Lake Michigan Forum, a stakeholder group funded by EPA. A more detailed discussion of the organizational structure is presented below.

1.4.1 Management Committee

The Lake Michigan Management Committee was first convened on June 20, 1991 to guide the overall development and implementation of the Lake Michigan LaMP. The original members included representatives from federal, state and tribal agencies. The current membership includes EPA (Lake Michigan Team, Great Lakes National Program Office, and Office of Research and Development; U.S. Fish and Wildlife Service; U.S. Army Corps of Engineers; U.S. Geological Survey; U.S. Department of Agriculture-Natural Resources Conservation Service; Illinois Environmental Protection Agency; Indiana Department of Environmental Management; Michigan Department of Environmental Quality; Wisconsin Department of Natural Resources; Great Lakes Fishery Commission; Chippewa-Ottawa Treaty Fishery Management Authority; and the Grand Traverse Band of Ottawa and Chippewa Indians.

The Management Committee convenes the standing Technical Coordinating Committee, Lake Michigan Forum, and other special technical committees as needed. The Management Committee directs LaMP development through approval of the document scope, specific strategies, and work plans, and it works through the committee members' respective agencies and departments to secure adequate resources to

complete the development of LaMP documents and to support and implement the LaMP strategies. Figure 1-2 at the end of this chapter illustrates the Lake Michigan LaMP organizational structure.

1.4.2 The Technical Coordinating Committees

A LaMP Technical Coordinating Committee (TCC) of cooperating agencies and governments (1) develops LaMP documents and programs and (2) recommends strategies, goals, work plans, and objectives to manage the Lake Michigan ecosystem. The current membership is the same as that of the Management Committee, with the addition of the Oneida Tribe of Wisconsin and the Agency for Toxic Substances and Disease Registry of the U.S. Centers for Disease Control and Prevention. The Steering Committee of the TCC includes a member from the EPA, the Lake Michigan Forum, and one state and tribal representative. Six subcommittees include Toxic Reduction; Human Health; Habitat; Stewardship; Partnership, Education and Outreach; and Indicators, Monitoring and Assessment. The last subcommittee is associated with two other standing committees: the Lake Michigan Mass Balance Technical Committee and the Lake Michigan Monitoring Coordinating Council (LMMCC).

1.4.3 The Lake Michigan Monitoring Coordinating Council

The Lake Michigan Monitoring Coordinating Council (LMMCC) responds to the need for enhanced coordination, communication, and data management among the many agencies and organizations that conduct or benefit from environmental monitoring efforts in the Lake Michigan basin. The LMMCC provides a forum for identifying gaps and establishing monitoring priorities; exchanging information; and forming partnerships. The LMMCC will also work in cooperation with the LaMP to develop and periodically update a monitoring plan for the Lake Michigan basin. This approach will result in cost-saving efficiencies for all involved and will provide the data needed to determine a current status of the lake ecosystem (http://wi.water.usgs.gov/lmmcc/links.html).

The Lake Michigan research dialogue provided by the LMMCC has roots in the Lake Michigan Mass Balance Project and many of the meetings held with its principal investigators. It is critical to build on this interaction and formalize the exchange of information and networking to maintain and link monitoring and research.

1.4.4 The Lake Michigan Forum

The LaMP process also involves a comprehensive approach to public involvement. This approach provides opportunities for public involvement and input across all levels of interest, ranging from the establishment of the Lake Michigan Forum to working with EPA to develop the LaMP, to broad public outreach and education efforts designed to ensure the involvement of all who wish to participate in the process. The Forum, facilitated by EPA, has leveraged its EPA funding for many projects. As the LaMP has evolved so has the Forum, and it is now taking on the role of partner in highly visible pollution prevention, land use, and outreach projects. The Forum developed the current LaMP outline, and Forum members checker the Monitoring and Assessment Committee and lead the Stewardship, the Partnership and Education, and Outreach Committees. The Lake Michigan Forum cochairs also attend and present status reports at all meetings of the Management Committee.

1.5 About the LaMP- How

This section discusses how the LaMP is used to document the current status of the lake and as a reporting mechanism for a wide variety of public and private stakeholders. It also describes the use of science and sophisticated modeling to aid policy decisions.

1.5.1 The Document and Reporting

Under the GLWQA, LaMPs and Remedial Action Plans (RAP) for designated Areas of Concern (AOC) are to be submitted to the International Joint Commission (IJC) when a key stage of work is completed. For LaMPs, there are four reporting stages:

Stage 1: When the definition of the problem has been completed

Stage 2: When the schedule of load reductions is determined

Stage 3: When remedial measures are selected

Stage 4: When monitoring indicates that the contribution of **Critical Pollutants** to impairment of the identified beneficial uses has been eliminated

In practice, these stages often overlap. In 1999, the Senior Management of EPA Region 5, in consultation with managers from the affected states, determined that the present edition of the Lake Michigan LaMP would constitute a LaMP that has combined attributes of Stages 1 through 3. The LaMP is part of an ongoing, iterative process – one that reflects the current states of environmental knowledge, planning, and action. The success of this LaMP will ultimately be measured by the degree to which it has guided public and private efforts toward achieving the Lake Michigan LaMP goals of a sustainable ecosystem and the restoration and protection of all beneficial uses.

Much of the required work will occur through partnership activities in local communities. Effective partnerships between governments, nongovernmental organizations, and concerned citizens will help to ensure that the LaMP process is successful in restoring the Lake Michigan ecosystem to one that is healthy and sustainable.

1.5.2 Science and Models: The Lake Michigan Mass Balance Project

The LMMB Project is an enhanced monitoring and modeling project that is working to develop a sound, scientific base of information to inform LaMP policy decisions. The LMMB Project's specific objectives are as follows:

1. To identify relative loading rates of four different categories of pollutants entering Lake Michigan: PCBs, mercury, transnonachlor, and atrazine

2. To evaluate relative loading rates by media (such as tributaries, atmospheric deposition, and contaminated sediments) to better target future load reduction efforts and to establish baseline loading estimates against which to gauge future progress (all samples for the mass balance study were taken in 1994 and 1995)

3. To develop the predictive ability to determine the environmental benefits of specific load reduction scenarios for toxic substances and the time required to realize those benefits through the use of models

4. To improve our understanding of key environmental processes and how they combine to govern the movement of pollutants through the lake (cycling) and fish and plant life (bioavailability)

State agencies in Illinois, Indiana, Michigan, and Wisconsin; the National Oceanic and Atmospheric Administration; and the Universities of Minnesota, Michigan, Wisconsin (Madison and Milwaukee), Maryland, and Indiana; Rutgers University and State University of New York at Buffalo are collaborating on the LMMB project. Additional information about the LMMB project is presented in Chapter 3.

Data from this project will be used to develop the final LaMP load reduction schedule.

1.6 About the LaMP-Scope

What is the Ecosystem Approach?

The goal of an ecosystem approach is to restore and maintain the health, sustainability, and biological diversity of the ecosystems while supporting sustainable economies and communities. Based on a collaboratively developed vision of desired future conditions, the ecosystem approach integrates ecological, economic, and social factors that affect a management unit defined by ecological - not political - boundaries. (The Ecosystem Approach: Healthy Ecosystems and Sustainable Economies, Vol. II. November 1995, page 1.)

This Lake Michigan LaMP has evolved beyond the 1993 toxic reduction plan, which focused on critical pollutants, specific areas of concern, and contamination hot spots. This LaMP also addresses all known stressors on the ecosystem. Concerns such as the loss of critical habitats, biodiversity, and the introduction of nuisance species, and other issues believed to affect ecosystem health, including human health and performance, have been added to the earlier focus on critical pollutant in an effort to establish an **ecosystem approach** for future lake management. Public comments have advocated this approach, and the current state of research has provided mounting evidence that physical and biological stressors are significantly degrading the Lake Michigan basin ecosystem.

The need to expand the scope of the LaMP document to include an ecosystem approach became clear as the Lake Michigan LaMP process matured. The following is a brief chronology of the evolution of the scope of this document:

- As early as November 1989, at a Chicago workshop, the proposed Framework for Lakewide Management Plans for Critical Pollutants raised the issue of scope.

  As originally envisioned in the GLWQA, the scope of LaMPs was restricted to chemical integrity or critical pollutants–especially toxic chemicals. However, a group of experts representing fishery and environmental managers, academia, and nongovernmental organizations concluded that the Lake Michigan LaMP should enlarge its scope of activities to encompass a true ecosystem approach (Eschenroder and others 1991). Also, Donahue and others (1991) reviewed six other remediation initiatives that predated the 1987 Protocol and concluded that the LaMP

process should be used as a planning framework where many activities are pursued–including, but not limited to, control of critical pollutants.

- Following the 1995 public comment period on the second draft of the Lake Michigan LaMP, reorganization initiatives within EPA Region 5 placed responsibility for the management of the LaMP with the multiprogram Lake Michigan Team. This team engaged the LaMP Technical Coordinating Committee and the Lake Michigan Forum stakeholders in a discussion of the scope of the LaMP. They recommended an outline for a LaMP and ecosystem plan that was approved by the Lake Michigan Management Committee in 1997.

- The LaMP ecosystem goals were adopted by the Lake Michigan Management Committee on August 18, 1998.

- In July 1999, the Binational Executive Committee (BEC) of the GLWQA parties directed the LaMPs for 2000 to pursue the following:

  "Treat problem identification, selection of remedial and regulatory measures, and implementation as a concurrent, integrated process rather than a sequential one. The LaMPs should embody an ecosystem approach, recognizing the interconnectedness of critical pollutants and the ecosystem. BEC endorses application of the concept of adaptive management to the LaMP process. By that, we adapt an iterative process with periodic refining of the LaMPs which build upon the lessons, successes, information, and public input generated pursuant to previous versions. LaMPs will adjust over time to address the most pertinent issues facing the Lake ecosystems. Each LaMP should be based on the current body of knowledge and should clearly state what we can do based on current data and information. The LaMPs should identify gaps that still exist with respect to research and information and actions to close those gaps."

1.7 About the LaMP-Where

In order to play a meaningful role in helping to attain a sustainable ecosystem, the LaMP must identify those pollution problems throughout the basin ecosystem that contribute to, or have the potential to contribute to, beneficial use impairments and nonattainment of LaMP goals. In determining their potential impact on the ecosystem, the extent of environmental problems and the frequency of their occurrence are both important considerations. For the Lake Michigan LaMP, it is proposed that beneficial use impairments be classified as follows:

Spatial

- Local – An AOC as designated by the Parties of the Agreement or other areas affecting the lake as designated by the Lake Michigan Management Committee

- Regional – An AOC cluster or multijurisdiction watershed

- Open water or lakewide – Concerning pervasive impairment of the lake as a whole

Temporal

- Ongoing – A continuing situation of impairment
- Episodic – An impairment that was documented but is not continuous
- Evolving – Unrelated episodic events that suggest a trend but are not yet continuous

Lake Michigan has 10 designated AOCs: the Manistique River, Menominee River, Fox River/Green Bay, Sheboygan River, Milwaukee Estuary, Waukegan Harbor, Grand Calumet River/Indiana Harbor, Kalamazoo River, Muskegon Lake, and White Lake. Figure 1-1 indicates the locations of the 10 AOCs. The gray area in the figure defines the Lake Michigan drainage basin. A discussion of each of these 10 AOCs, including their current status, can be found in Chapter 4 and Appendix F.

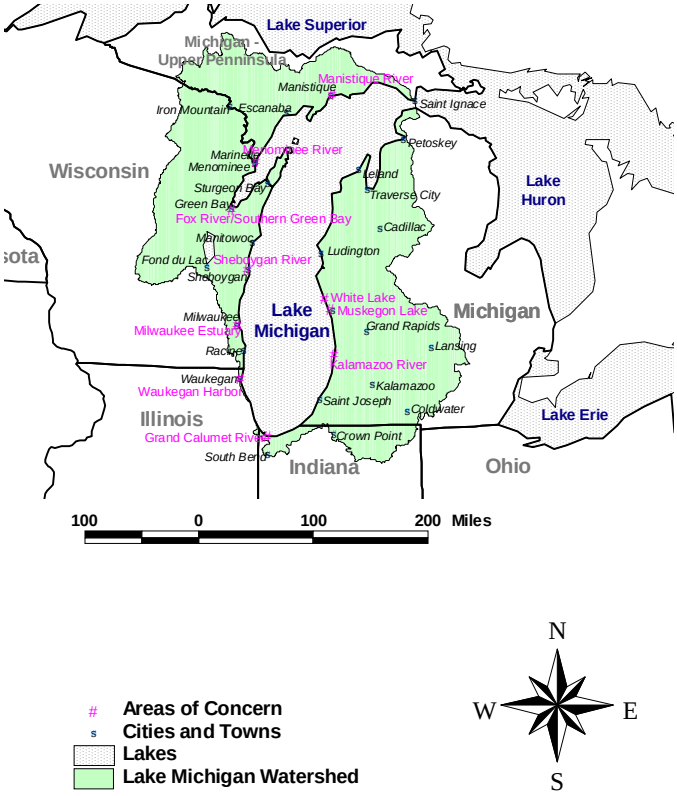

Figure 1-1. Lake Michigan Areas of Concern

The state LaMP coordinators work with each AOC, and representatives of the local RAP committees are invited to participate in the Lake Michigan Forum in order to enhance communication and coordination of plans and activities on the local AOC and basin-wide LaMP level.

Areas of Concern

In 1978 and 1987 the Great Lakes Water Quality Agreement between the US and Canada was expanded to address critical stressors affecting the basin's ecosystem. The intersections of major tributaries and the Lakes are areas where human activity by-products and collected river deposits concentrate. "The Parties recognize that there are areas in the boundary waters of the Great Lakes system where, due to human activity, one or more of the General or Specific Objectives of the Agreement are not being met. Pending virtual elimination of the persistent toxic substances in the Great Lakes system, the Parties, in cooperation with the State and Provincial Governments and the Commission, shall identify and work toward restoring and protecting beneficial uses in Areas of Concern or in open waters."

For each AOC a stakeholder group was convened to work with federal and state agencies to develop remedial action plans that defined the problem and suggested remedial actions. This program has been very successful in capturing the energy and creativity of the communities. Unfortunately, agency funding and resources have been uneven and have never approached the scale needed for remediation of large-scale legacy sites. The U.S. Army Corps of Engineers, acting under Superfund, Resource Conservation and Recovery Act (RCRA) Corrective Action Program, and the Clean Water Act authorities have successfully completed large-scale actions. The Superfund program ranks sites using the hazard ranking system (HRS), which is based upon specific criteria. This ranking serves as a "pattern" used in allocating resources and setting priorities among the AOCs.

Government and AOC communities want to move ahead and "delist" the AOCs as they are cleaned up, but there are complications as site remediation does not deliver complete or immediate removal of impairments. While remediation removes legacy pollution sources, the watershed and/or long range transport may be contributing to on-going pollution problems.

Many AOCs have evolved to incorporate a watershed focus, looking at nonpoint source pollution and pollution prevention to not only restore the area but also to focus on the health of the basin. The challenge for 2000 to 2002 is determining how AOC areas move to delisting and which agency has the lead for that part of the process. An AOC priority list of activities is presented in Addendum 6-B.

To attain sustainable ecosystem integrity, the LaMP must identify those goals, necessary partnerships, and locations where ecosystem management must occur. The 10 AOCs have been designated as top priority areas. The assessment of the current status of the lake has uncovered other sources of contaminants and stressors. Due to the rerouting of the Chicago River into the Mississippi River system, Chicago appears not to be in the basin; however, groundwater from the Chicago area has not been diverted, and the city's large airshed has been shown to be a source of pollutants that affect the lake. In addition, data from the LMMB project monitoring has shown that the St. Joseph River contributes pesticides from its large agricultural watershed. The LaMP process is working with both of these areas.

The Grand Traverse Bay is an example of an area that retains biological integrity and has created a broad-based coalition of local organizations and interests to engage in various initiatives to promote the preservation of environmental quality in the region. Building on this experience and noting the necessity of these efforts throughout the basin, the Lake Michigan Forum introduced a concept of self-designation,

Areas of Stewardship. This designation would help target agency technical assistance to those watersheds in the basin in which local partnerships are engaged in developing visions, identifying environmental concerns, setting priorities, and designing and implementing comprehensive plans for sustainable landscapes. This program would encompass AOCs and focus planning efforts on watersheds, crossing political boundaries. A prototype of this effort is underway in the Kalamazoo area.

Areas of Stewardship

An area of stewardship is defined as an area, most often a watershed, for which a level of ecosystem integrity has been established as a goal and where an integrated, multi-organizational initiative or partnership is actively working to achieve that goal. There are places around the Lake Michigan basin where such efforts are already in place such as in most AOC areas. In addition, Chicago Wilderness, the Kalamazoo Multi-Jurisdictional Watershed Agreement, and ongoing work in Grand Traverse Bay and Door County also fit the vision of stewardship.

1.8 The LaMP Document - Organization

This LaMP 2000 serves several purposes. First, it provides introduction and general background to the LaMP program and process. Second, it presents a framework and road map for presenting the current understanding of the lake and additional data to be added in later years. Third, it summarizes the technical research and scientific study of many Lake Michigan Partners. Fourth, it presents actual pollution prevention, restoration and other actions that governments, tribes, and industries can take to achieve the overall goals and vision of the LaMP.

The LaMP was written with many different audiences in mind, including managers of federal, state, and local programs; researchers; educators; and the general public. It attempts to address a complex issue: understanding, protecting, and managing the Lake Michigan ecosystem. The following is an overview of the organization of the LaMP.

Chapter 2: Lake Michigan LaMP – Vision, Goals, and Ecosystem Objectives, presents a holistic view of the ecosystem, a broad vision of restoration and protection goals, and authorities that will motivate all who might have an impact on the ecosystem health and sustainability of the lake. The LaMP ecosystem goals that resulted from this collaborative and evolutionary process are also presented and are placed within the context of the many international and national goals that have been established for all the Great Lakes, including the reduction of critical pollutants.

Chapter 3: Indicators and Monitoring of the Health of the Lake Michigan Ecosystem, proposes a number of indicators that will provide a consistent measure to report on key ecosystem components in order to assess progress toward ecosystem integrity, and describes numerous monitoring effects underway around the basin.

Chapter 4: Lake Michigan LaMP: Current Status of the Ecosystem, Beneficial Use Impairments, and Human Health, provides a detailed description of the ecosystem and its current status, including impairments of beneficial uses.

Chapter 5: Lake Michigan Stressor Sources and Loads, describes the current state of the science regarding chemical, physical, and biological causes and sources of the impairments.

Chapter 6: Strategic Action Agenda: Next Steps, presents the overall objectives needed to guide management of the ecosystem, and a list of recommendations to help achieve these objectives. A matrix format that presents examples of strategic actions for 2000 to 2002 is also presented for public comment.

Appendices: The Lake Michigan LaMP also includes an extensive compilation of supporting and reference materials.

- Appendices A, B, and C provide information on stressor management programs, physical properties of the chemical stressors, and the human health impacts of the chemical stressors, respectively.
- Appendix D contains the Lake Michigan Stakeholder Directory, which provides information about the numerous stakeholders throughout the Lake Michigan basin.
- Appendix E includes the draft Lake Michigan total maximum daily load (TMDL) strategy.
- Appendix F contains more detailed information on each of the 10 AOCs.
- Appendix G includes additional information describing the Lake Michigan ecosystem.
- Appendix H contains the EPA reference, "Region 5 Guide for Developing Environmental Goals, Milestones, and Indicators."

Finally, the reader will find a Lake Michigan LaMP Summary Table (provided at the end of Chapter 2 and each subsequent chapter) that provides a brief summary of the LaMP chapters presented previously.

1.9 The LaMP Document – Public Involvement

A major tenet of ecosystem management is the continuous involvement of the public that is "inclusive and respectful of all viewpoints and stakeholders," Keystone National Policy Dialogue on Ecosystem Management 1996. Because there are many public groups and community perspectives, with varying levels of interest and need for information, a public involvement effort for the Lake Michigan ecosystem is no less complex then the scientific data collected and analyzed.

The development of goals and subgoals for the LaMP took this complexity into consideration under subgoal 11 " we have enough information/data/understanding/indicators to inform the decision-making process." Achievements of that subgoal will hopefully motivate the public so subgoal 9 can be achieved: ecosystem stewardship activities are common and undertaken by public and private organizations in communities around the basin."

The LaMP Partnership, Education, and Outreach Committee developed public involvement tools. These tools, used over the last few years, have proven successful in reaching the public and providing ways to continue involvement if desired. They include employing current technology in developing web pages and decimating compact discs (CD) along with unique basin resources, such as a university research vessel. Plans include (1) updating the 10 Lake Michigan AOC fact sheets and keeping them on line and (2) making The Lake Michigan Explorer educational CD and a Cd version of the LaMP available for distribution. The Lake Michigan Forum has committed to continue its publicly distributed newsletter and web site that features not only Forum activities, but also articles on the AOCs, LaMP projects, and pollution prevention efforts. The Forum is again seeking funding for use of the Grand Valley State W.G.

Jackson research vessel for the third educational tour around the lake for Summer 2000. The Forum will also continue to sponsor public meetings in conjunction with their meetings held four times per year around the basin. The Environmental Youth Award Program with basin scout groups has been launched and was well received. This model needs to be marketed to all areas of the basin for maximum participation.

A variety of public meetings are planned between the LaMP 2000 release of this document and the development of the LaMP 2002 report. Many of these meetings will focus on a particular aspect of the LaMP with the goal of engaging the public in a discussion on a more specific level, for example, long-range transport of air pollution. The following are among the meetings and reports currently planned:

Spring/Summer

No date	–	Tribal Meetings
April 27, 2000	–	Chicago Kent Law School

Summer

No date	–	Planning Commissions Summer Boat Tour with public meeting at each Port of Call, including Chicago and other locations
August 2, 2000	–	Sustainable Agriculture Task Force, Sheboygan,WI
September 2000	–	Great Lakes National Beach Conference Chicago, IL

Fall

No date	–	Teachers Conference, Roosevelt University, Chicago, IL
October 17-19, 2000	–	State of the Lakes Conference, Hamilton, Ontario
November 8-9, 2000	–	Long Range Transport of Air Pollution, St. Joseph, MI
May 2001	–	Lake Michigan Monitoring Coordinating Council
November, 2001	–	State of Lake Michigan Conference, Grand Valley State University, Muskegon, MI

This list is incomplete and subject to change; current information can be found at www.epa.gov/lakemich or www.lakemichiganforum.org.

Summer 2000
Two reports will be published, the first is the final report of the LaMP/Great Lakes Commission Tributary Monitoring Project. The second is the Lake Michigan Forum's status report on Agriculture Pollution Prevention in the Lake Michigan basin.

1.9.1 Public Comments

1995 LaMP

In the early 1990s, two early drafts of the Lake Michigan LaMP were presented for public comment. The comment period for the second LaMP draft closed in September 1995. The comments fell into four categories: (1) document format, (2) document and program scope, (3) data attribution, and (4) use of risk-based analysis.

In order to be responsive to the comments and concerns expressed, the decision was made to (1) expand the program and the document by taking an ecosystem approach, as outlined in this chapter; (2) coordinate document production with the Lake Michigan Mass Balance (LMMB) Project findings to provide the most current additional data, as well as use modeling to help determine risk; and (3) provide clearly referenced material.

Many of the comments that dealt with language and presentation were considered in production of LaMP 2000 but are now moot because wording from the 1995 document was not utilized.

LaMP 2000

This document is presented as a working document, not as a "draft not yet complete." It was the goal of the Binational Executive Committee to provide a *current* foundation for discussion–not necessarily a *complete one.* The LaMP will be modified every 2 years based on new findings and public discussion. This is a necessary step if we are to institute **adaptive management** on an ecosystem scale.
Comments

Comments are welcome and can be provided on-line at the website below or in writing to U.S. EPA, Attention Lake Michigan Team, 77 West Jackson Boulevard, Chicago, Illinois, 60604.

On-Line Response

To provide current and open access to all comments and response actions to the draft released in April 2000, comments and responses will be summarized and posted at www.epa.gov/lakemich. The Lake Michigan Forum will feature some of the comments and responses in the Forum's Newsletter, at the November 2001 State of Lake Michigan Conference, and in the 2002 LaMP report.

> "Adaptive management encourages active participation by all stakeholders in the planning, implementation, monitoring, and redirection of ecosystem management initiatives. Social and economic values and expectations are routinely considered, along with ecological objectives, in continually correcting the course of management. Results from the monitoring of ecological, economic, and social variables are used to track management outcomes" (Keystone Report, 1996).

1.9.2 Next Steps

The public involvement process outlined above is not intended to just inform the public about the LaMP, but also to engage the public in discussions about the findings and suggested activities. There are many aspects of this plan that are incomplete, and the public dialogue process is intended to gain input and move the decision-making process forward.

In particular, comments are needed on the following:

Chapter 1. The concept of Area of Stewardship

Chapter 3. Priorities for the indicator list

A list of indicators cross walked with the LaMP subgoals is presented for public comment. The LaMP will be working with the Lake Michigan Monitoring Coordinating Council to develop a monitoring plan that will provide clear monitoring commitments and the data to measure an indicator.

Chapters 4 and 5. Efforts needed to continue to fill in data gaps

The LMMB models will be completed within the 2000-2002 time frame as will the EEGLE Project lead by the National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Laboratory www.glerl.noaa.gov/eegle/. EEGLE will incorporate currents, temperature, wave and ice along with sediment transport and food simulations to determine the impact of the massive spring turbidity plume along 200 miles of southern Lake Michigan shoreline. EEGLE and LMMB models will presented to ecosystem managers and the public in 2002.

Additional monitoring is needed to fill in the gaps in our data. We need to plan now to sample some of the same locations on the 10 year anniversary of the LMMB in 2004 to document trends and gather data for the TMDL efforts in the basin.

Chapter 6. Actions, priorities, and other actions needed such as the follow:

- Eco-rich Areas and habitat identification placed on-line in GIS Mapping

  Identification of eco-rich areas where protection activities should be a priority are underway. The Great Lakes Commission has been funded by EPA to gather Lake Michigan data for production of an on-line atlas that would provide a basin-wide land use planning and protection tool. USFWS is mapping the threatened and endangered species in the basin by county. The EPA Region 5 Ecosystem Team, in partnership with Region 5 States, is preparing ecologically rich area maps. EPA Office of Research and Development is preparing "greenness contrast" maps for all the Great Lakes beginning with Lake Michigan in spring 2000. The purpose of this map is to present a large scale overview of the amount of green cover that has been lost to development in the last few decades.

- TMDL Strategy

  There are many efforts underway that provide an opportunity to use the LaMP and LMMB data and models. We are requesting comments on the TMDL Strategy in the appendix as soon as possible as work on developing the strategy and gathering data need to begin soon.

- Quantified Targets for Pollution Reduction

  Reduction targets presented have been pulled from national EPA commitments and from other initiatives like the Binational Strategy and are therefore funded through EPA Regional Office and State grants. They are presented as interim or working targets. The public and multi-agency discussion on specific reduction targets is pending the results of the LMMB model runs. Specific targets and commitments will be part of the 2002 report.

Lake Michigan Lakewide Management Plan
Organization Structure
Adopted August 18, 1998